

# SRS UPDATE

NEWS FROM THE SAVANNAH RIVER SITE • OCTOBER 2005

## SRNL, Toyota to collaborate on hydrogen technology

Automaker Toyota has joined forces with the Savannah River National Laboratory to bring the nation a step closer to making hydrogen-fueled automobiles practical for widespread use.

The Toyota Technical Center U.S.A. (TTC) and the Savannah River National Laboratory (SRNL) will work together on research and development of improved hydrogen storage material for potential automotive applications. This work is being carried out under a five-year Cooperative Research and Development Agreement, which provides a framework for SRNL and TTC to identify and collaborate on projects in areas such as hydrogen storage, development of new materials and others.

So far, TTC and SRNL have defined two research and development tasks that they will pursue together. Funding for the two tasks, which amounts to over \$2 million over the next three years, is provided by TTC, Toyota Motor Company's U.S. technical center. About half of the funding will come to SRNL for their portion of the research and development work; the other half will cover TTC's efforts.

This research supports President Bush's Hydrogen Fuel Initiative to ensure our nation's long-term energy security and a clean environment. Using hydrogen to fuel our economy can reduce dependence on imported petroleum, diversify energy resources, and reduce pollution and greenhouse gas emissions.

"Hydrogen has tremendous potential to be the ultimate clean fuel of the future," said SRNL Laboratory Director Dr. G. Todd Wright. "To make it a reality, however, we still must find answers to some very important technical

challenges. Collaborations like this one – where we combine our strengths and skills – are crucial for developing those answers."

"The National Nuclear Security Administration (NNSA) sees the collaboration between SRNL and private industry as mutually benefiting the commercial sector and NNSA," said Richard Arkin, NNSA Savannah River Site

Office manager. "This collaboration will ultimately provide the NNSA and its contractors with improved and more cost-effective hydrogen storage technology that is essential to the long-term defense programs mission at SRS." SRNL's expertise in hydrogen technology grows out of its historical and on-going support for SRS's defense-related work with tritium.

SRNL has extensive expertise in metal hydrides, metal particles that absorb hydrogen, allowing it to be stored in a safe, stable, easily-



Jennifer Pittman (left) and Ragaiy Zidan develop lighter weight materials for hydrogen storage.

handled, easily-contained solid state form. The advantages of solid state storage over storage in a liquid or gas form are obvious, but traditional hydrides have a big drawback: They are very heavy, which makes them unsuitable for use in a vehicle. The ultimate goal of the first SRNL-Toyota project is to develop a low-cost hydrogen storage material, with a high hydrogen storage capacity and other characteristics that make it suitable for use on board a vehicle. The other current task will explore ways to make hydrogen storage materials less sensitive to the effects of air and moisture.

## SRS IN BRIEF



Members of the SWMF team observe the last of legacy waste placed in the E-Area Slit Trench disposal facility.

### Solid Waste Material Facility reaches milestone early, safely

The Solid Waste Management Facility (SWMF) recently placed a very special drum of Low Level Waste in the E-Area Slit Trench disposal facility. Normally, this would be a routine waste placement; however, this drum represented the completion of a five-year campaign of the disposition of 12,600 cubic meters of temporarily stored legacy radioactive waste.

Superior teamwork, innovation, employee commitment and plain old hard work resulted in this important company objective being safely completed a year ahead of schedule. This achievement required developing many unique disposal solutions for a variety of waste types. Numerous engineering, regulatory, and disposal facility design/developments were implemented, involving organizations throughout SWMF, Savannah River National Laboratory and SRS waste generating facilities. Some examples include completion of a complicated delisting process through the Environmental Protection Agency that translated into 2,678 containers of vitrified hazardous/radioactive waste being moved from M Area and lowered into trenches, and a one-of-a-kind South Carolina Department of Health and Environmental Control authorization to dispose of selected lead-bearing waste forms. The last of the waste disposed was liquid radioactive waste requiring characterization and stabilization prior to disposal. This work was completed in addition to supporting a tremendous increase in low-level radioactive waste disposal from the decommission and demolition of Naval Fuels, M Area and a host of additional closure campaigns.

### First irradiated tritium rods arrive at SRS

The National Nuclear Security Administration (NNSA) has moved one step closer to restoring an important capability to our nation's nuclear defense. This major step was achieved when the Savannah River Site recently received the first shipment of tritium in the form of irradiated Tritium Producing Burnable Absorber Rods from the Tennessee Valley Authority's (TVA) Watts Bar nuclear reactor.

The rods are a product of NNSA's nuclear weapons Readiness Campaign, and contain the first tritium produced by the United States in over 15 years. To perform as designed, every U.S. nuclear weapon uses tritium; however, that tritium must be replaced periodically.

Since 1992, NNSA has relied completely on recycling tritium to support the nuclear weapons stockpile. The need for a new tritium supply was recognized, and the Department of Energy decided to pursue the production of tritium in a commercial nuclear reactor (TVA's Watts Bar) and construction of a modern new Tritium Extraction Facility at SRS.

### Final groundwater cleanup begins in M Area

A significant groundwater remediation milestone has been reached in M Area, setting the stage for final area closure.

In the western sector of the A/M Area, a large plume of chemical contamination, consisting mainly of solvents, emanates from the closed M Area Settling Basin. A cleanup technology called Dynamic Underground Stripping (DUS) has been placed into operation to aggressively remove the source of this contamination. Groundwater cleanup, coupled with ongoing demolition in M Area's former reactor materials production facilities, is helping SRS move closer to final closure of M Area.

At the settling basin site, which covers about three acres, the DUS system is removing significant levels of solvents that were disposed into the basin from the production process in M Area's facilities.

It is estimated that more than one million pounds of solvents underlying this area will be removed in a cleanup campaign that will last about 40 months. In comparison, using standard cleanup methods, it would take more than 200 years to remove this amount of contamination.



DUS operations began Aug. 8 at 10 a.m. Pictured are Chris Bergren (from left), Bruce Schappell, Michael Graham, and Gerald Faulk.

### Finding the college of your dreams



Students seek information at College Night.

Over 6,500 students attended this year's CSRA College Night, with \$19,000 in scholarships awarded. In addition to \$10,000 in scholarships awarded by SRP Federal Credit Union, Tiffany Plummer of Evans High School was the lucky student awarded a \$2,000 scholarship provided by Washington Group International. Each of the other winners was awarded \$1,000 each.

To qualify, students had to be high school juniors or seniors, graduate with a GPA equal or above 2.5 on a 4.0 scale (or equivalent), and attend CSRA College Night to register.

Since its inception, over \$150,000 in scholarships have been awarded by local businesses to students attending the event.

Scholarships...Colleges...Financial aid...SAT scores? So many questions, but where do students and parents go to find the answers? Once again, the thirteenth annual CSRA College Night proved to be a place where students and parents could find answers to these questions and more.

High school students had an opportunity to meet recruiters from more than 160 colleges and universities at the Augusta-Richmond County Civic Center.

## SRS IN BRIEF

# SRS United Way campaign raises over \$1.9 million

SRS employees recently celebrated raising over \$1.9 million for area United Way agencies.

Westinghouse Savannah River Company, Bechtel Savannah River Inc., BNG America Savannah River Corporation, BWXT Savannah River Company and CH2 Savannah River Company employees donated a grand total of \$1,961,780 during their annual employee United Way campaign, about 115 percent of the \$1.7 million goal.

"Our employees, either individually or through teamwork, contributed to the success of this campaign. Whether it was picking up a hammer for the United Way's Project SERVE, Project CARE or Project VISION, and/or filling out a pledge card, every employee made a difference," said WSRC President Bob

Pedde. "I am very proud that our employees continue to recognize and respond to the needs of our communities."

Twelve local agencies are designated to receive employee contributions. They are the United Way agencies of Colleton County, Screven County, McDuffie County, Hampton County, Allendale County, Edisto, Midlands, Bamberg County, Edgefield County, Barnwell County, CSRA and Aiken County.

For over 50 years, SRS employees have supported a tradition of caring for the less fortunate and providing a better future for our communities through the support of the SRS Employee United Way Campaign. In the site's history, employees have donated more than \$45 million to the United Way.



The SRS Update is published monthly by Westinghouse Savannah River Company. If you have questions or comments about any of the articles, call 803.952.9583. Change of Address? Notify the WSRC Service Center: service-center@srs.gov or PSSC Bldg. 703-47A, Aiken, SC 29808

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